

88
3. A humanized immunoglobulin according to claim 1 which specifically binds to the CD33 antigen with an affinity of between 10^8 M^{-1} to 10^{10} M^{-1} .

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4. A humanized immunoglobulin according to claim 1, wherein said acceptor immunoglobulin heavy and light chain frameworks are from the same human antibody.

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5. A humanized immunoglobulin according to claim 4, wherein the human antibody is the Eu human antibody.

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6. A humanized immunoglobulin according to claim 1, wherein said donor immunoglobulin is the M195 antibody.

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7. A humanized immunoglobulin according to claim 6, wherein the sequence of the light chain variable region is substantially identical to the sequence:
D I Q M T Q S P S S L S A S V G D R V T I T C R A S E S V D N Y G
I S F M N W F Q Q K P G K A P K L L I Y A A S N Q G S G V P S R F
S G S G S G T D F T L T I S S L Q P D D F A T Y Y C Q Q S K E V P
W T F G Q G T K V E I K.

93
8. A humanized immunoglobulin according to claim 6, wherein the sequence of the heavy chain variable region is substantially identical to the sequence:
Q V Q L V Q S G A E V K K P G S S V K V S C K A S G Y T F T D Y N
M H W V R Q A P G Q G L E W I G Y I Y P Y N G G T G Y N Q K F K S
K A T I T A D E S T N T A Y M E L S S L R S E D T A V Y Y C A R G
R P A M D Y W G Q G T L V T V S S.

94
9. A humanized immunoglobulin having complementarity determining regions (CDRs) from a donor immunoglobulin and heavy and light chain variable region frameworks from human acceptor immunoglobulin heavy and light chains, which humanized immunoglobulin specifically binds to an epitope of the CD33 antigen with an affinity constant of at least 10^7 M^{-1} , wherein

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said humanized immunoglobulin comprises amino acids from the donor immunoglobulin framework outside the Kabat and Chothia CDRs that replace the corresponding amino acids in the acceptor immunoglobulin heavy or light chain frameworks, and each of said amino acids:

(I) is adjacent to a CDR in the donor immunoglobulin sequence, or

(II) contains an atom within a distance of 5 Å of a CDR in said humanized immunoglobulin.

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10. A humanized immunoglobulin according to claim 9, which is an antibody comprising two light chain/heavy chain dimers.

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11. A humanized immunoglobulin according to claim 10 which is of the IgG1 isotype.

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12. A humanized immunoglobulin according to claim 9 which specifically binds to said epitope with an affinity of at least 10^8 M^{-1} .

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13. A humanized immunoglobulin according to claim 9, wherein said donor immunoglobulin is the M195 antibody.

99
14. A humanized immunoglobulin according to claim 12 wherein the sequence of the light chain variable region is the sequence:

D I Q M T Q S P S S L S A S V G D R V T I T C R A S E S V D N Y G
I S F M N W F Q Q K P G K A P K L L I Y A A S N Q G S G V P S R F
S G S G S G T D F T L T I S S L Q P D D F A T Y Y C Q Q S K E V P
W T F G Q G T K V E I K.

100
15. A humanized immunoglobulin according to claim 12 wherein the sequence of the heavy chain variable region is the sequence:

Q V Q L V Q S G A E V K K P G S S V K V S C K A S G Y T F T D Y N
M H W V R Q A P G Q G L E W I G Y I Y P Y N G G T G Y N Q K F K S
K A T I T A D E S T N T A Y M E L S S L R S E D T A V Y Y C A R G
R P A M D Y W G Q G T L V T V S S.

¹⁰¹
16. A humanized immunoglobulin according to claim 9
which is substantially pure.

¹⁰²
17. A humanized immunoglobulin according to claim 9
which is capable of mediating antibody dependent cellular
cytotoxicity in the presence of human target and effector cells.

¹⁰³
18. A humanized immunoglobulin according to claim 9,
which is conjugated to a cytotoxic agent.

¹⁰⁴
19. A pharmaceutical composition containing a
humanized immunoglobulin according to claim 9.

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20. A method of treating myeloid leukemia disorders in
a human patient, said method comprising administering to said
patient a therapeutically effective dose of a composition
according to claim 19.--

Respectfully submitted,

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